

This listing of claims will replace all prior versions, and listings, of claims in the application.

IN THE CLAIMS:

Claim 1 - 18 (Canceled)

Claim 19 (Currently amended). An apparatus for the destructive distillation of rubber to produce hydrocarbon and solid carbonaceous char, comprising:

a distillation chamber for holding the rubber, said chamber being sealable for the substantial exclusion of oxygen from said chamber;

~~heating means~~ a heater associated with said distillation chamber for heating rubber in said chamber to a temperature sufficient to pyrolyze the rubber, distill a vapor comprising hydrocarbon from the rubber and produce a solid carbonaceous char;

~~means~~ a gas outlet for removing said vapor comprising hydrocarbon from said chamber;

~~means for condensing hydrocarbon from said vapor removed from said chamber to produce~~ a condenser for producing a liquid fraction comprising hydrocarbon from said vapor removed from said chamber; and

~~means for circulating~~ a circulation loop including a heat exchanger through which a heat transfer gas in a circulation loop is circulated from said distillation chamber, through said heat exchanger and back into said chamber, said circulating heat transfer gas passing through said chamber and contacting said carbonaceous char to transfer heat from the char to the heat transfer gas and thereby cool the char,[[;]] and said circulating

heat transfer gas passing through said heat exchanger to remove heat from the heat transfer gas and thereby cool the heat transfer gas.

~~means for removing heat from the heat transfer gas circulating in the circulation loop.~~

Claim 20 (Currently amended). ~~Apparatus~~ An apparatus for the destructive distillation of rubber to produce hydrocarbon and solid carbonaceous char, comprising:

[[two]] first and second distillation chambers for holding the rubber, said chambers being sealable for the substantial exclusion of oxygen from said chambers;

~~heating means~~ a heater associated with each distillation chamber for heating rubber in the chambers to a temperature sufficient to pyrolyze the rubber, distill a vapor comprising hydrocarbon from the rubber and produce a solid carbonaceous char;

~~means~~ a gas outlet associated with each distillation chamber for removing the vapor comprising hydrocarbon from the chamber[[s]];

~~means for condensing hydrocarbon from said vapor removed from said chambers to produce~~ a condenser for producing a liquid fraction comprising hydrocarbon from said vapor removed from said chambers; and

~~means~~ a circulation loop for circulating a heat transfer gas ~~in a circulation loop, said heat transfer gas passing through both of said distillation chambers~~ from said first distillation chamber, through said second distillation chamber and back into said first chamber such that the heat transfer gas contacts solid carbonaceous char in ~~one of~~ said first chamber[[s]] and contacts a rubber charge in ~~the other of~~ said second chamber[[s]], heat

being transferred from the carbonaceous char to the heat transfer gas in said ~~[[one]]~~ first chamber to cool the char, and heat being transferred from the heat transfer gas to said rubber charge in ~~the other~~ said second chamber to preheat the rubber charge.

Claim 21 (Currently amended). ~~Apparatus~~ An apparatus for the destructive distillation of rubber to produce hydrocarbon and solid carbonaceous char, comprising:

a distillation chamber for holding a rubber charge, said chamber being sealable for the substantial exclusion of oxygen from said chamber;

~~heating means~~ a heater associated with said distillation chamber for heating said rubber charge in ~~[[the]]~~ said chamber to a temperature sufficient to pyrolyze the rubber, distill a vapor comprising hydrocarbon from the rubber and produce a solid carbonaceous char;

~~means~~ a gas outlet for removing said vapor comprising hydrocarbon from said chamber;

~~means for condensing hydrocarbon from said vapor to produce~~ a condenser for producing a liquid fraction comprising hydrocarbon from said vapor removed from said chamber; and

means for monitoring weight loss of said rubber charge in ~~[[the]]~~ said chamber as a result of pyrolysis.

Claim 22 (Original). The apparatus as set forth in claim 21 wherein the weight loss monitoring means comprises a load cell.

Claims 23-25 (Canceled)

Claim 26 (Previously presented). The apparatus as set forth in claim 19 further comprising means for monitoring weight loss of the rubber in the distillation chamber as a result of pyrolysis.

Claim 27 (Previously presented). The apparatus as set forth in claim 26 wherein the weight loss monitoring means comprises a load cell.

Claim 28 (Currently amended). The apparatus as set forth in claim 19 wherein the ~~heating means~~ heater associated with said distillation chamber comprises radiant heating tubes in which a mixture of a hydrocarbon and an oxygen-containing gas is combusted.

Claim 29 (Previously presented). The apparatus as set forth in claim 28 wherein the oxygen-containing gas is air.

Claim 30 (Previously presented). The apparatus as set forth in claim 20 further comprising means for monitoring weight loss of the rubber in each of the distillation chambers as a result of pyrolysis.

Claim 31 (Previously presented). The apparatus as set forth in claim 30 wherein each weight loss monitoring means comprises a load cell.

Claim 32 (Currently amended). The apparatus as set forth in claim 20 wherein the ~~heating means~~ heater associated with each distillation chamber comprises radiant heating tubes in which a

mixture of a hydrocarbon and an oxygen-containing gas is combusted.

Claim 33 (Previously presented). The apparatus as set forth in claim 32 wherein the oxygen-containing gas is air.

Claim 34 (Currently amended). The apparatus as set forth in claim 21 wherein the ~~heating means~~ heater associated with said distillation chamber comprises radiant heating tubes in which a mixture of a hydrocarbon and an oxygen-containing gas is combusted.

Claim 35 (Previously presented). The apparatus as set forth in claim 34 wherein the oxygen-containing gas is air.